

Improving Self-Control Through Financial Counseling: A Randomized Controlled Trial

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The efficacy of family budgeting programs is often measured purely in terms of financial outcomes. There has been less research on its potential impacts on cognitive outcomes. The present study investigated whether an existing financial counseling intervention could help people improve their deliberative cognitive capacity. A community sample of participants in Auckland, New Zealand who identified that they wanted to better manage their money were randomly assigned to a month-long financial counseling intervention or a wait-list control group. Results showed that participants exposed to the intervention had a greater improvement in self-control than participants in the control group, and that self-control improved more for people with a low income than a high income. Financial counseling interventions may impart broader cognitive benefits that help people escape further financial hardship.

Keywords: family budgeting, financial counseling, intervention, self-control, randomized controlled trial

The provision of family budgeting programs is integral to improving the financial capability and well-being of low- to middle-income households (Commission for Financial Capability, 2015). Budgeting is an important aspect of overall financial wellbeing and is particularly beneficial for low-income households, who lack leeway in their budget to absorb the costs of bad financial decisions (Xiao & O'Neill, 2018). There is ample evidence that receiving money management support, advice, and education results in better financial outcomes, such as higher disposable income and reduced debt (Wilson, Houghton, & Piper, 1995), but could there be additional, psychological benefits from financial counseling? Drawing from three separate but related lines of psychological research, it is possible that participating in a family budgeting program helps to improve one's deliberative cognitive capacity (Spears, 2010). Deliberative cognitive capacity is essential for activities like long-term planning, reasoning, and self-control (Miyake et al., 2000). Self-control, in particular, allows us to regulate our behavior, thoughts and emotions by overriding dominant impulses or response tendencies and is linked to many aspects of life success, including personal finances

(Gathergood, 2012). Thus, by supporting better deliberative cognitive capacity, family budgeting programs could result in a range of financial and nonfinancial benefits that ultimately help people escape further hardship. The purpose of this research was to explore whether participating in a family budgeting program improves self-control. The results provide a unique perspective on our understanding of the benefits of financial counseling.

Previous Research and Hypothesis

Financial counseling has been shown to have a positive influence on financial knowledge and behavior, particularly for those with a lower level of financial literacy (Moreland, 2018; Xu, 2018), and has positive, flow-on impacts to other areas of life, such as health (White et al., 2018). Less researched, are the psychological benefits of financial counseling. There are three main mechanisms by which participating in financial counseling could improve self-control. Firstly, there is evidence that the worry and rumination associated with financial hardship acts as a form of persistent distraction (Mullainathan & Shafir, 2013; Shah, Mullainathan, & Shafir, 2012). Working with clients to

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reduce their worry, for example, by helping them balance their budget or defer creditors, will allow them to devote more attention to other important but cognitively demanding tasks. Secondly, financial hardship increases the difficulty of everyday decision-making, resulting in cognitive fatigue (Boksem & Tops, 2008; Spears, 2010). By helping clients to manage multiple financial priorities and using decision tools like cash-flow forecasts, this will likely streamline decision-making and reduce cognitive fatigue. Finally, financial hardship increases the amount of self-control people must exercise, leading to self-control or “ego” depletion (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Encouraging clients to stick to a budget and regulate their spending, for example by removing the temptation of a credit card or automating important payments, will reduce the level of self-control needed every day.

The three mechanisms described earlier all result in the same hypothesized impact on cognitive function. Cognitive function occurs via the interplay of two dominant cortical systems: a fast, affective system and a slow, deliberative system (Kahneman, 2011). There are some contexts where engaging deliberative reasoning tends to result in better decision-making (Figner, Mackinlay, Wilkening, & Weber, 2009; Pocheptsova, Amir, Dhar, & Baumeister, 2009; Stanovich, 1999). A number of contexts pertinent to improving one’s financial situation rely on deliberative cognitive processes. For example, managing competing financial priorities, navigating the myriad of Government departments and bureaucracy, and negotiating with creditors. Self-control is one of the key facets of deliberative cognitive function (Miyake et al., 2000) and has been shown to affect a number of financial and nonfinancial life outcomes (Bray, Graham, & Saville, 2015; Muraven & Baumeister, 2000; Tangney, Baumeister, & Boone, 2004). For this reason, the focus of the present research will be on the impact of financial counseling on self-control.

There is existing evidence that behavioral interventions can improve self-control. Leahey, Xu, Unick, and Wing (2014) found that after 6-months participating in a behavioral weight loss program, participants exhibited greater self-control compared to baseline and the magnitude of improvement was related to greater overall weight loss, better adherence to the program, and a greater increase in physical activity. Oaten and Cheng (2007) showed that undergraduate University students assigned to a financial

monitoring intervention had greater self-control after a month, compared to a no-treatment control condition, and showed continued self-control improvements over a 6-month period. Similarly, DeHart, Friedel, Lown, and Odum (2016) found that, compared to students in an abnormal psychology course, students exposed to a money management course were less likely to discount future, larger gains in favor of present, smaller rewards (Green, Fristoe, & Myerson, 1994) at the end of the semester.

The present study was designed to investigate the efficacy of an existing, New Zealand-based financial counseling intervention at improving the self-control of low-to middle-income individuals. The intervention was delivered for a period of 1 month by a budget advisor certified by the New Zealand Federation of Family Budgeting Services (NZFFBS). Until it was replaced by the Building Financial Capability Trust in 2016, the NZFFBS was the umbrella organization for family budgeting services in New Zealand and affiliated services followed a standardized budgeting procedure. This ensured a consistent intervention across participants. Self-control was measured at baseline and postintervention and compared to a wait-list control group. It was hypothesized that exposure to the intervention would lead to improved self-control, and that low-income participants would experience the greatest improvement, as they stood to benefit the most from the intervention.

Method

Participants

Of 89 participants in Auckland, New Zealand, who responded to the community advertisement, 30 (19 female) met the eligibility criteria to participate in the study. Advertisements sought individuals interested in participating in a psychology study and improving their financial situation. Because the intervention involved formulating a money management plan and the possibility of waiting up to a month to do so, people were ineligible to participate if they were not experiencing financial difficulties or, conversely, if their financial situation required urgent attention. If ineligible to participate, people were referred to their nearest NZFFBS budgeting service. Participants who were included in the study had a mean yearly household income of USD \$36,132 ($SD = 25,586$) and median of \$29,869, with a minimum of \$6,105 and maximum of \$99,550. Participant ages ranged from 22 to 65 with a mean of 34

($SD = 9.41$). In terms of ethnicity, 57% identified as NZ European, 17% as Asian, 13% as Asian Indian, and 7% as African. One participant identified primarily as Māori and one identified as Pacific Islander. Participants tended to have a Bachelor's degree (47%) or postgraduate level qualification (13%). A smaller percentage identified their highest level of education was a Diploma/Apprenticeship (17%) or high school (23%). Participants tended to be in full-time (47%) or part-time (23%) employment; however, a large number of participants identified that they were unemployed (30%).

Design and Procedure

All participants were measured at two time-points, one month apart: pre- (Time 1) and postintervention (Time 2). Using a wait-list control design, 15 participants were randomly assigned to the intervention, where they began financial counseling after the first time-point, and 15 participants were assigned to the control condition, where they did not begin financial counseling until after the second time-point. At each time-point, self-control was measured using a hand-grip dynamometer, along with several personality and financial measures. There was no participant attrition between time-points. A wait-list control design was employed because of the small sample size and to ensure both groups received the potentially beneficial intervention (Campbell & Stanley, 1963; Roberts & Llard, 2003). To minimize expectancy effects (i.e., when participants in the control condition are particularly unmotivated to do anything to improve their situation while they anticipate treatment at some point in the future; Patterson, Boyle, Kivlenieks, & van Ameringen, 2016), participants were not made aware what condition they were in. Those in the control condition were told that, due to high demand, they may have to wait up to a month to see a budget advisor (Cunningham, Kypri, & McCambridge, 2013). They were encouraged to contact the experimenter should their financial situation change over the course of the month and the experimenter also contacted them each week (Patterson et al., 2016). Participants completed each experimental session either at an office at the University of Otago Auckland Centre or in a hired, community room in their local area. Participants were not debriefed as to the aims or hypotheses of the study until after the second time-point. Participants received \$13 as reimbursement after the first experimental session and \$20 as reimbursement after the second.

Intervention

The experimental intervention was an existing money management program delivered in New Zealand, designed by the NZFFBS. The client–advisor relationship, as laid out by the NZFFBS, involves working in partnership to assess the client's financial situation, respond to any immediate crises, draw up a working budget, create a manageable debt repayment plan, and establish a 52-week cash flow, identifying times where cash flow may become negative and adjusting spending accordingly (NZFFBS, 2015). Because most family budgeting services face a high level of demand and long wait-lists (Hutton, 2016; McAvine, 2013), the experimenter, a certified budget advisor with West Auckland Budgeting Service, was the budget adviser to participants in the study. There are limitations to an intervention facilitator not being blind to experimental conditions (Patterson et al., 2016); however, as a small-scale, exploratory study it was not feasible to recruit and reimburse a dedicated, outside advisor. It was explained to participants that the experimenter was a certified budget advisor and that the budgeting relationship formed would be outside the study. This was to ensure that when the study ended they felt they could continue to seek advice and support. Participants were assured that any information collected as part of financial counseling would be confidential and not related to the study. Although a longer intervention period would have been ideal (Leahey et al., 2014), the 1-month length of the intervention was set based on NZFFBS guidelines to meet with clients on a weekly or fortnightly basis (NZFFBS, 2015), evidence that cognitive changes to self-control can appear after only 2 weeks (Bertrams & Schmeichel, 2014; Bray et al., 2015), and so as to not seriously disadvantage those in the wait-list control group.

Measures

At each experimental session, self-control was measured using a hand-grip dynamometer. Endurance hand-grip is the length of time(s) an individual can squeeze a hand-grip without letting go. Squeezing a hand-grip for a long period of time is uncomfortable, therefore the task measures how well people can override their dominant affective/emotional response to let go of the grip by exercising self-control. Endurance hand-grip has been shown to be closely associated with self-control strength rather than physical strength (Rethlingshafer, 1942) and has been a popular measure of self-control in the ego depletion literature (Bray et al., 2015; Fujita, Trope, Liberman, & Levin-Sagi,

2006; Muraven, 2010; Xu et al., 2014). Best-practice in this paradigm is to use an electronic dynamometer that is customizable for the hand-size of each participant and measures strength electronically (kilogram per force; Graham, Sonne, & Bray, 2014). This was the procedure used in the present experiment. Participants were asked to grip the dynamometer with the screen facing upward and their elbow bent at a 90° angle and rested on a table. The first measurement was of maximum grip strength, where participants were asked to squeeze the grip as hard as possible for 3 s. The second measurement was of endurance hand-grip, where participants were asked to squeeze the grip at or above half their maximum strength for as long as possible, until it felt uncomfortable and they wanted to let go. The length of time they were able to hold the grip was measured using a stopwatch. As a guise to the experimental aims, participants were told that the dynamometer measured sensory-motor function (Fujita et al., 2006).

Participants then completed questionnaire measures of self-control, risk-aversion, financial literacy, attitude-to-debt, and financial distress. Self-control was measured using the 13-item brief Self-Control Scale (Tangney et al., 2004), where a higher score indicated greater self-control. Financial distress was measured using the eight-item InCharge Financial Distress/Financial Well-Being scale (Prawitz et al., 2006), where a higher score indicated less distress. Risk-aversion was measured using the 30-item Domain General Questionnaire (DOSPERT; Blais, & Weber, 2006), where a higher score across five domains (financial, health/safety, recreational, ethical, and social) represented a greater propensity for risk-taking. Changes to tolerance for debt was measured using the 14-item Attitude-to-Debt scale (Davies & Lea, 1995), where a higher score indicated a higher aversion to debt.

Results

Hand-Grip Dynamometer

Data for two participants were excluded from the final analysis because they were more than two standard deviations above the mean income level (>\$99,550). Data were also excluded from one participant who was more than two standard deviations below the mean change in endurance handgrip (< 65 s). Therefore, for the analysis, there were 13 participants in the experimental condition and 13 in the control condition. Mean endurance hand-grip from Time 1 to Time 2 increased more for participants exposed

TABLE 1. ANOVA of the Interaction Between Experimental Condition and Income Level With Household Size, Change in Financial Situation and Baseline Self-Control as Covariates

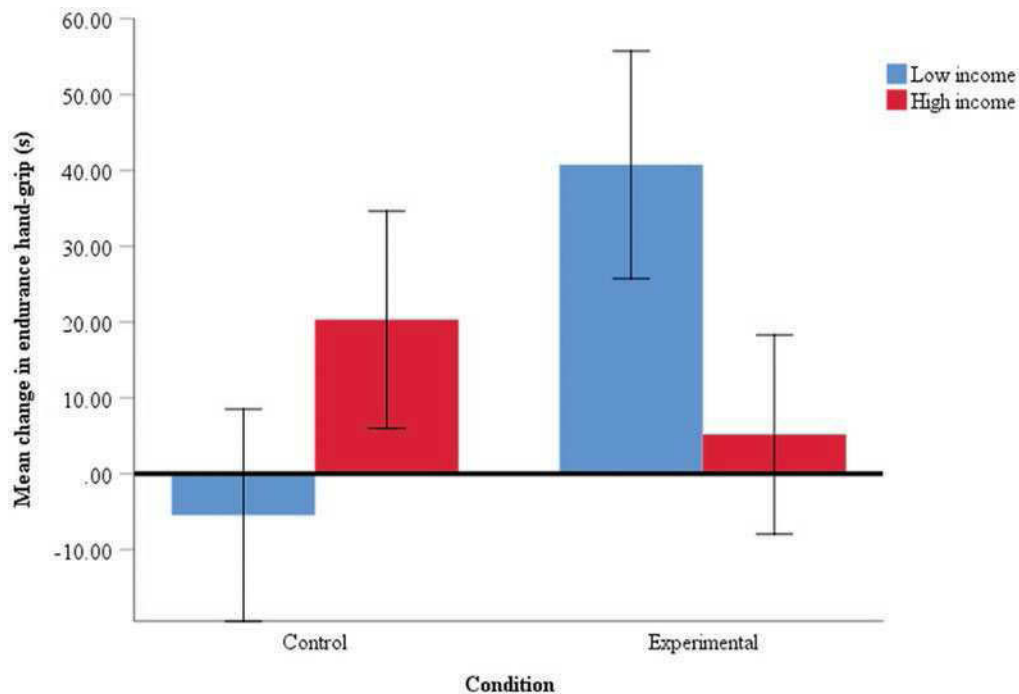
	df	F	η_p^2	p
Baseline self-control	1	7.190	0.275	0.015
Change in financial situation	1	2.294	0.108	0.146
Household size	1	1.359	0.067	0.258
Experimental condition	1	1.135	0.056	0.300
Income level	1	0.125	0.007	0.728
Experimental condition X income level	1	4.229	0.182	0.054
Error	19			
Total	26			

to the intervention (16.51 s) than the control group (3.02 s). An ANOVA was conducted with change in endurance hand-grip from Time 1 to Time 2 as the measured variable and income level (low or high) and experimental condition (intervention or control) as the between-participants variables (see Table 1). Baseline self-control, self-rated change in financial situation over the course of the month, and household size were included as covariates in the analysis. The results showed that there was a marginally significant interaction between experimental condition and income level, where low-income participants exposed to the intervention showed the greatest increase in endurance handgrip, compared to high-income participants and low-income participants in the control group (see Figure 1). The effect size of this interaction was large accounting for over 18% of the outcome variance. There were no main effects of experimental condition or income level alone.

Personality/Financial Measures

A series of repeated measures ANOVAs, with time point as the within-participants variable and experimental condition as the between-participants variable, were conducted for each of the personality/financial measures. The results showed that financial distress reduced for both groups over the course of the month, $F(1,25) = 7.738, p = .01, \eta_p^2 = .236$, but this was not related to experimental condition, $F(1,25) = .367, p = .550, \eta_p^2 = .014$. There was no change over

Figure 1. Change in endurance hand-grip (s) as a function of experimental condition (control or intervention) and income level (low or high). Error bars represent standard error.



time depending on experimental condition for self-control, $F(1,25) = .694, p = .413, \eta_p^2 = .027$, attitude-to-debt, $F(1,25) = 1.553, p = .224, \eta_p^2 = .058$, or risk-aversion, $F(1,25) = 1.066, p = .312, \eta_p^2 = .041$.

Postintervention Questionnaire

Participants exposed to the experimental intervention rated a significantly larger change in their overall financial knowledge, $\chi^2(2, N = 26) = 8.952, p = .011$, compared to participants in the control condition. They also rated a larger change in their overall financial situation, $\chi^2(3, N = 26) = 5, p = .172$, however this difference was not significant. When asked to rate on a scale of 1 (no change) to 10 (large change) how much participants had made an effort to monitor their spending over the course of the month, there was no significant difference between conditions, $F(1,25) = 1.681, p = .201, \eta_p^2 = .065$. There were also no differences between conditions in terms of how typical the month was, $\chi^2(3, N = 26) = .654, p = .884$, or whether they believed they had changed their spending patterns, $\chi^2(2, N=26) = 1.433, p = .488$.

Discussion

The provision and funding of family budgeting services is an integral component of building financial capability and improving the well-being of low-to-middle income families (CFFC, 2015). While there is strong evidence of the financial outcomes of such interventions (Wilson et al., 1995), the additional, psychological outcomes are less clear. Based on three main theories of the effect of poverty on cognitive function, there is theoretical evidence that participating in a financial counseling intervention should improve deliberative cognitive function and, in particular, self-control (Spears, 2010). The present research was designed to investigate the efficacy of a month-long, existing financial counseling intervention at improving self-control.

The magnitude of self-control improvement over the course of the month was over five times greater for participants in the intervention than the control condition. There was a marginally significant interaction, whereby low-income participants showed the greatest improvement in self-control after being exposed to the intervention compared to low-income participants in the control condition

and high-income participants. The effect size of this interaction was large (Cohen, 1988) indicating a meaningful effect in terms of practical significance. In fact, only baseline individual differences in self-control exerted a larger effect on the outcome. Gliner, Vaske, and Morgan (2001) argue that effect size may be an especially useful measure in smaller sample studies. A similar study looking at the efficacy of a behavioral weight-loss intervention using the same measured variable showed that self-control improved more for participants who met their intervention goals than those who did not with a medium effect size (Leahey et al., 2014). This was observed with an intervention that spanned 6 months. It is possible that the significance of the effect observed in the present study could translate to much larger changes over the long-term, with a larger sample (Glass, McGaw, & Smith, 1981; Lakens, 2013). Because the greatest change in self-control was observed for low-income participants, this suggests budgeting interventions targeted to low-income families, households, and/or neighborhoods will yield the greatest potential cognitive impact.

Participants did not change in their self-control, attitude-to-debt, or risk-aversion over the course of the month. Participants exposed to the intervention rated a slight improvement in their financial situation compared to the control group; however both groups showed a similar decrease in financial distress that was unrelated to experimental condition. This suggests that either participants in the control condition may have experienced expectancy effects (Cunningham et al., 2013) or a month may have not been enough time for significant financial changes to manifest. Participants exposed to the intervention noted a greater increase in their financial knowledge, suggesting they may only be at the contemplation or preparation stage of behavior change, rather than the action or maintenance stages, where intentions are more likely to translate to behavior (Gutter, Hayhoe, & Wang, 2007; Kerkmann, 1998; Prochaska, & Velicer, 1997). It is likely difficult for people to make major behavior changes in only a month. The significant change in financial knowledge as a result of the budgeting intervention shown in the present study supports education as one key component of family budgeting programs where financial practitioners can usefully focus their efforts.

There were some limitations to this study. Firstly, the experimenter was also the intervention budget advisor, which could have biased the treatment results. This dual-role was

justified so that the intervention was timely, standardized, cost-effective, coincided with the experimental sessions, and minimized attrition, which are major difficulties with this type of field research (Collins, 2017). Secondly, there was an unexplained baseline difference between experimental conditions. Participants were randomly assigned to conditions and the difference could not be explained by any of the additional measured variables so it is possible that this difference was due to natural variation (Melnik & Morrison-Beedy, 2012). Finally, the relatively small sample size of the study could have influenced the observed effects. Past research has relied on student-based samples (DeHart et al., 2016; Oaten, & Cheng, 2007); whereas, in the present study a community-based sample was recruited. Although a large number of people expressed an interest in the study, there were only a small portion who were experiencing financial difficulties, but not to the point where they required immediate support. It would have been unethical to withhold treatment from these people should they be randomly assigned to the control condition. Perhaps testing multiple formats (e.g., online, in person, or group-based) of the same financial counseling program could overcome this ethical issue. This is a direction for future research.

The results from this research provide evidence that a financial counseling intervention can produce a practically significant improvement in self-control, particularly for people with a low income. A greater capacity for self-control could help people escape a cycle of financial hardship (Bray et al., 2015; Kennickell, Starr-McCluer, & Sunden, 1997; Muraven & Baumeister, 2000; Thaler & Shefrin, 1981). Future research should explore the mechanism driving this. It may be that specific aspects of financial counseling, like reducing financial worry (Shah, Mullainathan, & Shafir, 2012), using a budget to simplify decision-making (Spears, 2010), or automating transactions (Vohs, 2013), have a greater impact on deliberative cognitive function than others. It is also possible that the intervention led to other psychological changes, like motivation “spill-over” (Mata et al., 2009) or greater self-efficacy (Job, Dweck, & Walton, 2010).

Implications for Practitioners

The results from the present study suggest that by providing money management advice, financial counselors can

have a positive influence not only on financial wellbeing of their clients, but also their capacity for self-control. This attests to the diverse benefits of financial counseling, encouraging greater funding of the industry, and enhanced training for practitioners (Lander, 2018). To enhance these effects, financial practitioners might consider encouraging their clients to actually practice self-control, for example, by restricting impulsive purchases, as self-control practice could compound the increase in self-control observed in this study (Muraven, 2010; Muraven & Baumeister, 2000). This encouragement of self-control practice might yield the greatest impact earlier in life as part of children's financial literacy programs or parent education programs (Horner et al., 2016). The results from the present study also suggest that to achieve the greatest impact in self-control improvement, practitioners should target their services to low-income families, households, and/or neighborhoods. Although there were some methodological limitations to the present research, it addressed the need for more field-based, empirical studies in personal financial counseling (Collins, 2017). Understanding the broad range of financial and nonfinancial outcomes from family budgeting programs will help refine their design and improve their impact.

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